IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	)	
	)	Conf. No.: 9583
Sidney M. Weiser et al.	)	
	)	Art Unit: **1794**
Application No.: **10/626,260**	)	
	)	Examiner: **Ula C. Ruddock**
Filed: **Jul. 24, 2003**	)	
	)	Attorney Docket No.: 4977-108579
For: **Turf Reinforcement Mat Having Multi-Dimensional Fibers and Method of Erosion Control**	)	

DECLARATION PURSUANT TO 37 C.F.R. § 1.132

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, Derek S. Bass, residing at 17 Golden Eagle Drive, Adairsville, Georgia, hereby declare:

1. I am submitting this declaration in response to the telephonic interview with Examiner Ruddock on or about February 19, 2010, relating to the Examiner's Office Action dated December 1, 2009 (the "Office Action"), and to establish that the claimed turf reinforcement mat yields results that would be unexpected to a person of ordinary skill in the art over the results expected to be obtained by the combination of Bohannon, Jr. (US 6,855,650) with Lancaster (US 5,849,645) and Martin et al. (US 5,972,463).

Background Information

2. I was awarded a Bachelor of Science degree in Management from Georgia Institute of Technology in 1990.

3. Since 1992 I have held technical and managerial positions at Propex Operating Company, LLC or one of its predecessor companies – Synthetic Industries, SI Corporation, Propex Inc., or Propex Operating Company, LLC. From 1992 until 2006, I was employed by SI Corporation ("SI"; formerly Synthetic Industries) of Chattanooga, TN. From 1992 to 2001, I held various technical

superintendent positions, with responsibility for leading research and development, quality, customer technical service, and process engineering functions for carpet backing, geosynthetics, industrial, recreational, fiber reinforced concrete, and agricultural product lines. From 2001 until 2004, I was Director of Research and Development for the Flooring and Furnishings product lines, and from 2004 until 2006, I was Corporate Technical Advisor with technical responsibility for identifying, developing, and delivering growth opportunities to the enterprise.

4. In 2006, the portion of SI that made and sold geotextiles (including turf reinforcement mats and other erosion control products) and several other industrial fibers and fabrics businesses was combined with Propex Fabrics, Inc. to form a new company called Propex Inc. ("Propex"). Since 2006, I have served as Director of Research and Development and since 2007, have also been Director of Quality. At Propex I have led engineers, scientists, and process specialists in the identification of market opportunities and the development and commercialization of new products across all product lines. In 2009, Propex Inc. reorganized to become Propex Operating Company, LLC.

5. I am a current member of the Research Advisory Committee of the Georgia Textile Manufacturer's Association. In addition, I serve on the Textile Advisory Board for Southern Polytechnic State University.

6. I am a joint inventor of United States Patent No. 6,675,837, entitled "Woven fabric having modified selvage and related assembly and method for the manufacture thereof."

7. Although I am not an inventor of United States Patent Application No. 10/626,260 (U.S. Patent Application Publication No. 2005/0020157, the "Application"), I am very familiar with and understand this technology.

8. I have read a copy of the previously and currently presented claims of the Application submitted to the United States Patent and Trademark Office.

The Closest Prior Art

9. As one who is familiar with turf reinforcement mats from several manufacturers including North American Green and Enka, I do not know of a commercial turf reinforcement mat other

than the one in this application that has tri-lobal monofilaments attached to a net.

10. The turf reinforcement mat with the structure closest to the one in the claims is the product made since 1990 by SI Corporation. That product was called LandLok® 450 and had round monofilaments. Aside from the cross sectional shape of the monofilaments in the center of the composite, the structures of that turf reinforcement mat and the composite that is the subject of this application are the same. As indicated in paragraph [0042] in the application, Sample A is the original LandLok 450 and Sample B is the turf reinforcement mat of the claims. Figure 1 is a photograph of Samples A and B and a third mat that fairly represents the nonwoven mat described by the Martin reference (US 5,972, 463). Additional discussion of the Martin mat is provided later. The actual samples can be provided if it is so desired.

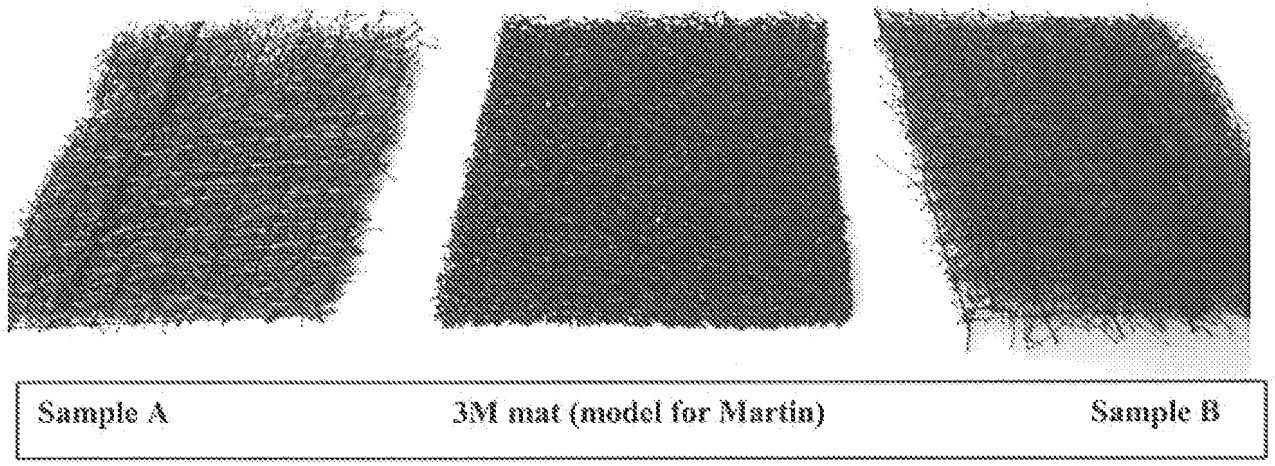

Figure 1. Photograph of Samples A and B in the application and a nonwoven mat sold by 3M.

Performance of turf reinforcement mats

11. The Application includes several sets of test data to show that a composite turf reinforcement mat with a specific type of tri-lobal monofilaments (e.g., Sample B) displayed improved performance compared to an analogous turf reinforcement mat with round monofilaments (Sample A). Table I and paragraphs [0043] through [0045] describe results of seed germination tests.

Table I

Germination Testing

First Round of Test

Property	Units	Day	Control	Sample B	Sample A
Seeds germinated per area	# per 4 sq. in. area	21	1.1	11.8	6.9
Average pit height	inch	21	0.4	2.2	1.9
Plant mass per area	mg per 4 sq. in.	21	1	10.7	9.9

Second Round of Test

Property	Units	Day	Control	Sample B	Sample A
Seeds germinated per area	# per 4 sq. in. area	14	1.8	10.7	10.7
		21	4.9	13.1	10.9
Average pit height	inch	14	1.7	3.3	2.3
		21	2.3	3.6	3.4
Plant mass per area	mg per 4 sq. in.	21	7.6	17.7	18.7

Third Round of Test

Property	Units	Day	Control	Sample B	Sample A
Seeds germinated per area	# per 4 sq. in. area	14	3.8	13.7	12.6
		21	3.9	14.7	14.3
Average pit height	inch	14	1.5	2.4	2.6
		21	1.8	3.2	3.3
Plant mass per area	mg per 4 sq. in.	21	10.6	31.6	28.6

Paragraphs [0043] and [0045] states as follows:

With reference to the first round of tests, after 21 days, the Sample B product showed a 71% improvement over the Sample A product for seed germinated per area. For average pit height, the improvement of Sample B over Sample A was 16% and for plant mass per area, the improvement of Sample B over Sample A was 8%.

With reference to the second round of tests, after 14 days, the Sample B product showed no improvement over the Sample A product for seed germinated per area while after 21 days, the Sample B product showed a 20% improvement over the Sample A product. For average pit height, the improvement of Sample B over Sample A was 43% after 14 days and 6% after 21 days. For plant mass per area, there was no improvement after 21 days.

With reference to the third round of tests, after 14 days, the Sample B product showed a 9% improvement over the Sample A product for seed germinated per area while after 21 days, the Sample B product showed a 3% improvement over the Sample A product. For average pit height, there was no improvement of Sample B over Sample A after 14 days and after 21 days. For plant mass per area, there was a 10% improvement after 21 days.

Table III shows soil loss results, and Table IV shows resistance to shear-induced erosion results.

Table III

Resiliency

Property	Units	Sample B	Sample A
First round of test	%	93	82
Second round of test	%	87	78

Property		Sample B	Sample A
Soil Loss	SLR	0.14	0.15

Table IV

Erosion Testing

Test	Tested Materials	Test Parameters	Test Results
Shear-induced Erosion	Sample B	Silty-sand; 65-70% Vegetated	*tp* = 6.4 psf
	Sample A	Silty-sand; 65-70% Vegetated	*tp* = 6.8 psf

(Key: *tp* = permissible shear)

That test report in Appendix A is from TRI/Environmental, Inc., a well respected third party test lab for turf reinforcement mat testing, includes these data.

12. Sample B (i.e., the composite mat with a tri-lobal monofilament) demonstrated consistently superior results in a wide variety of tests – seed germination, soil loss ratio, and resistance to shear-induced erosion. The superior performance demonstrated by Sample B in such a wide variety of tests was bothsurprising and unexpected. I am unaware of any literature reference that teaches or suggests that the cross sectional shape of the monofilament within a composite turf reinforcement mat affects the relative performance of the turf reinforcement mat in any of these tests.

13. Because the only parameter that distinguishes Sample A from Sample B is the cross sectional shape of the monofilament; that change must be responsible for the difference in performance.

14. Design parameters for turf reinforcement mats are not sufficiently understood to allow characteristics of one mat, such as the shape of the cross section of monofilament yarns - to be extrapolated to the performance of other turf reinforcement mats with any degree of predictability. This is especially true when 1) turf reinforcement mat performance must be predicted in a broad range of tests, and 2) the comparative turf reinforcement mat has a significantly different structure.

Response to the Office Action and Cited Documents

15. I have read a copy of the Office Action and understand that all claims of the Application have been rejected based on the combination of the following documents: (1) U.S. Patent No. 6,855,650 to Bohannon, Jr. ("Bohannon"), in view of (2) U.S. Patent No. 5,849,645 to Lancaster (Lancaster"), and (3) U.S. Patent No. 5,972,463 to Martin et al. ("Martin"). The Martin reference is relied upon to provide a tri-lobal monofilament in the nonwoven mat.

16. Although Bohannon describes a fiber-filled erosion control blanket with a netting to hold the loose filling together and Lancaster discloses composite matting that may be stitched together by a polyester black thread, neither reference teaches nor suggests the criticality of monofilament shape in the performance of composite turf reinforcement mats.

17. The Martin reference is directed primarily to a mat used as a floor covering or door mat. As the Examiner has noted, Martin also states that the mat may be used as an erosion control or civil engineering matting (col. 7, lines 2-3). Martin's multicomponent filaments can be in the shape of fibers, ribbons, tapes, strips, bands, and other narrow and long shapes (col. 5, lines 7-9). The filaments may be solid, hollow, or porous (col. 5, lines 22-23). They may also be circular or non-circular in cross section, or odd in cross section, including lobal, elliptical, rectangular, and triangular (col. 5, lines 24-27). The Martin reference has eleven figures of possible cross sectional shapes. Only one of them (i.e., Figure 14) has three lobes.

18. Based on my training and experience, I respectfully disagree that this combination of references would make the selection of the specific tri-lobal filament cross section in the amended main claim an obvious design choice.

19. None of the references cited – nor any other publication known to me – discloses data that suggests that the shape of monofilaments in a composite turf reinforcement mat has any bearing on critical performance properties of turf reinforcement mats, such as seed germination rate, soil loss rate, resistance to shear-induced erosion. The lack of such data makes it extremely unlikely that anyone with ordinary skill in the art would combine Bohannon, Lancaster, and Martin expecting to create a turf reinforcement mat with improved performance in key tests. The Application is the first time I know of where monofilament shape has shown to affect

performance in a composite turf reinforcement mat. Consequently, the results are definitely unobvious. The fact that the monofilament with the tri-lobal cross section described in the amended main claim led to turf reinforcement mats with consistently better performance compared to an analogous turf reinforcement mat with round monofilaments is both surprising and unexpected.

20. The Martin reference provides no hint that a mat with tri-lobal monofilaments has improved properties. Since Martin 1) lists an extremely broad list of possibilities for monofilament shape (col. 5, lines 7-35), 2) has no teaching or suggestion that any shape is preferred, 3) describes the production of round cross section filaments in all filament Examples (except Example 9, which shows a rectangular cross section), and 4) has no data on turf reinforcement mats, it is highly unlikely that one with ordinary skill would rely on Martin for guidance in selecting a particular monofilament cross section leading a composite turf reinforcement mat with improved performance.

21. Further, the Martin reference describes a nonwoven web that is very different than the loose-laid mat of monofilaments in the instant invention. Martin's web is made from undrawn, durably melt bonded filaments (col. 3, lines 52-55) bound in a continuous network. In contrast, the monofilaments of the instant invention are drawn (Paragraph [0027], lines 10-12), loose laid, and discontinuous (Paragraph [0028], lines 4-9).

22. The mat in the center of Figure 1 is a nonwoven mat of the type described by Martin. Figure 2 is a close-up view of the network structure. The web in both figures was from a floor mat sold by 3M, the owner of the Martin patent. The technical brochure for that product (Safety Walk™ 1500) is in Appendix B. This mat represents the type of network that is produced according the Martin reference. The critical characteristics are the undrawn filaments and bonding points between filaments. Clearly, this nonwoven web is very different from the nonwoven mat of monofilaments in the instant invention. Consequently, even if Martin were to suggest or show by example that tri-lobal filaments gave improved performance compared to round monofilaments in turf reinforcement mat tests (which he does not), one skilled in the art would be unable to readily extrapolate that information to the composite turf reinforcement mat with loose laid oriented strands in the instant invention. When attempting to predict performance of

composite turf reinforcement mat's in key tests, the structure of the network in the nonwoven web is at least as important as the cross sectional shape of the filaments.

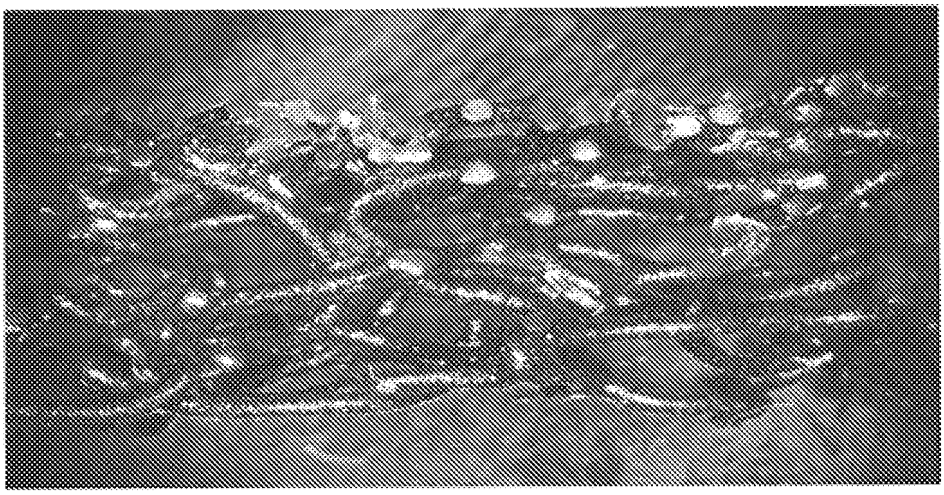

Figure 2. Photograph of cross section of 3M Safety Walk 1500 mat (model for Martin)

23. As has been discussed in several previous Office Actions, the cross sectional shape shown in Figure 14 of Martin is not the same tri-lobal shape described in the amended claim. In the absence of experimental data, there is no way of knowing if a composite turf reinforcement mat with filaments with the Martin tri-lobal shape - or any other non-circular cross section - would perform better or worse in key turf reinforcement mat tests than the composite of the invention, which has the specific tri-lobal shape in the amended claim.

Summary

24. The Application presents data for the first time that demonstrates the improved performance of a composite turf reinforcement mat with monofilaments of a particular cross sectional shape compared to an analogous composite turf reinforcement mat with round monofilaments. The amended claim is not obvious based on the combination of Bohannon, Lancaster, and Martin or any other reference I am aware of.

25. I further declare that my statements made herein of my own knowledge are true, and that all statements made on the information and belief are believed to be true; and further that these statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements and the like so made may jeopardize the validity of this declaration, the subject application or any patent

issuing thereon.

Respectfully submitted,

Derek S. Bass

5/28/2010

Date